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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,234	02/27/2004	Francois Abel	CH920040010US1	7973

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Rafael Perez-Pineiro  
IBM CORPORATION  
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EXAMINER
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WEIDNER, TIMOTHY J

ART UNIT	PAPER NUMBER
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2619

MAIL DATE	DELIVERY MODE
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02/01/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/789,234

Applicant(s)

ABEL ET AL.

Examiner

Timothy Weidner

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's Amendments and Accompanying Remarks, filed November 21, 2007, have been entered and have been carefully considered. The drawings, specification, and claims 1, 3, 4, 7-11, and 14-16 are amended. Claim 17 is cancelled.
2. Applicant's amendment of figures 5a and 5b are accepted, and remarks regarding figures 3, 4, and 5c considered persuasive. Objections to the drawings are withdrawn.
3. Applicant's cancellation of claim 17 and amendment of claims 1 and 16 is accepted. Objection and rejection to claim 17 are withdrawn. Objection to claims 1 and 16 are withdrawn.

### ***Drawings***

4. The drawings are objected to because the unlabeled rectangular boxes in figures 1, 2, and 6 should be provided with descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement

sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed "program storage device" was not described in the original disclosure and, as such, constitutes new matter.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roth et al. (US 2003/0231588 A1) in view of McKeown (US 5,500,858).

10. Regarding claims 1, 9, and 16, Roth teaches a device, method, and program storage device comprising: providing a first request information (paragraph 59; "request contains the weight") in a first time slot (paragraphs 61, 62; "iteration"), the first request information indicating the data packets at the inputs (paragraph 58; "weight ... reflects the urgency of the specified queue to transmit its queued cells") requesting transmission to the outputs of the switching system (paragraph 62); performing a first step in the first time slot depending on the first request information (paragraph 60; "determines the input node having the highest weight ... from which it received a request") to obtain a first matching information (paragraph 61; "grant"); providing a last request information in a last time slot successive the first time slot (paragraphs 61, 62; same reasons as first request and time slot specified above only performed in a successive/last iteration); performing a last step in the last time slot depending on the last request information (paragraph 60; "determines the input node having the highest weight ... from which it received a request") and depending on the first matching information (paragraph 61; the

multicast queue sending requests in successive iterations would not be performed if the grant were not sent to the multicast queue in the first iteration) to obtain a final matching information (paragraph 61; "grant"); and assigning the pending data packets at the number of inputs to the number of outputs in dependence on the final matching information (paragraph 0062).

11. However, Roth does not explicitly teach "parallel request information" in the first and last timeslots. McKeown, which is in the same field of endeavor, teaches a scheduler using requests from inputs for outputs being made in parallel (column 5, lines 47-52; "simultaneously") in successive time slots (column 6, lines 5-6; "iteration") for the purpose of providing a scheduling technique that converges in a single iteration. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have request information provided in parallel to provide a scheduling technique that converges in a single iteration.

12. Regarding claim 2, Roth teaches the matching method is performed in a first and a second thread, which are shifted, so that the first step of the second thread and a second step of the first thread are performed in the same time slot (paragraph 0083).

13. Regarding claims 3 and 10, Roth teaches between the first step and the last step of the matching method a number of intermediate steps (paragraph 60; "determines the input node having the highest weight ... from which it received a request") are performed in successive intermediate time slots between the first time slot and the last time slot (paragraphs 61, 62; "successive iterations" meaning any between the first and last), wherein a respective intermediate request information is provided in the respective

intermediate time slot (paragraphs 61, 62; same reasons as first request and time slot specified above only performed in a successive/intermediate iteration); wherein each of the steps provides an intermediate matching information (paragraph 61; "grant") to a successive intermediate step depending on an intermediate matching information from the preceding intermediate step (paragraph 61; the multicast queue sending requests in successive iterations would not be performed if the grant were not sent to the multicast queue in the first iteration) and depending on a request information of the respective intermediate time slot (paragraph 60; "determines the input node having the highest weight ... from which it received a request"), wherein the first step (determining) provides the first matching information (grant) to the first of the intermediate steps (paragraphs 60, 61; determining is based on a set of nodes derived from the determining of the previous grant), and wherein the last step (determining) receives the intermediate matching information (grant) from the last of the intermediate steps (paragraphs 60, 61; determining is based on a set of nodes derived from the determining of the previous grant).

14. Regarding claims 7, 8, 14, and 15, as in the instant invention alternative, Roth teaches the request information (paragraph 59; "weight") is selectively provided to the first, intermediate and last steps (paragraph 60; "determining") depending on the current number of pending requests of each input relative to each of the outputs in the respective first, intermediate and last time slot (paragraphs 66, 67; "occupancy of the queue ... is its weight").

15. Regarding claims 4 and 11, Roth teaches the performing of one of the intermediate and the last steps includes the steps of: modifying the respective intermediate and last request information (paragraph 59; "sending a request") depending on the respective first and intermediate matching information provided by the preceding step (paragraphs 60, 61; determining is based on a set of nodes derived from the determining of the previous grant); and performing the one step depending on the modified respective request information to obtain a partial matching information (paragraph 60; the matching is performed by "each output node," i.e. one of many being partial).

16. Regarding claims 5 and 12, Roth teaches the one step further includes the step of: merging the intermediate matching information provided by the preceding step and the partial matching information to obtain the respective intermediate or final matching information (paragraphs 61, sending the grants and removing those outputs from consideration in successive iterations is the same as merging matching information).

17. Regarding claims 6 and 13, Roth teaches the partial matching information is modified (paragraph 61; "sending a grant") depending on, as in the instant invention alternative, the matching information provided by any of the steps (paragraphs 60, 61; sending a grant is based on a set of nodes derived from the determining of the previous grant).



***Response to Arguments***

18. Applicant's arguments with respect to the rejection of claim 16 under 35 USC 101 have been considered but are moot in view of the new ground(s) of rejection under 35 USC 112, 1<sup>st</sup> paragraph.

19. Applicant's arguments with respect to claims 1-16 under 35 USC 102(e) have been considered but are moot in view of the new ground(s) of rejection under 35 USC 103(a).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Weidner whose telephone number is (571) 270-

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Art Unit: 2619

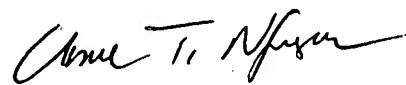
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1825. The examiner can normally be reached on Monday - Friday, 8:00 AM - 5:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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